



IFWO

RAW SEQUENCE LISTING

DATE: 08/04/2004

PATENT APPLICATION: US/10/728,723

TIME: 09:51:52

Input Set : A:\66797-395.txt

Output Set: N:\CRF4\08042004\J728723.raw

4 <110> APPLICANT: Watkins, Jeffry D.
 5 Pancook, James D.
 7 <120> TITLE OF INVENTION: Butyrylcholinesterase Variants That
 8 Alter the Activity of Chemotherapeutic Agents
 10 <130> FILE REFERENCE: 66797-395
 12 <140> CURRENT APPLICATION NUMBER: US 10/728,723
 13 <141> CURRENT FILING DATE: 2003-12-04
 15 <150> PRIOR APPLICATION NUMBER: US 10/310,666
 16 <151> PRIOR FILING DATE: 2002-12-04
 18 <160> NUMBER OF SEQ ID NOS: 204
 20 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 22 <210> SEQ ID NO: 1
 23 <211> LENGTH: 1722
 24 <212> TYPE: DNA
 25 <213> ORGANISM: Artificial Sequence
 27 <220> FEATURE:
 28 <221> NAME/KEY: CDS
 29 <222> LOCATION: (1)...(1722)
 31 <223> OTHER INFORMATION: synthetic butyrylcholinesterase variant
 33 <400> SEQUENCE: 1
 34 gaa gat gac atc ata att gca aca aag aat gga aaa gtc aga ggg atg 48
 35 Glu Asp Asp Ile Ile Ala Thr Lys Asn Gly Lys Val Arg Gly Met
 36 1 5 10 15
 38 aac ttg aca gtt ttt ggt ggc acg gta aca gcc ttt ctt gga att ccc 96
 39 Asn Leu Thr Val Phe Gly Gly Thr Val Thr Ala Phe Leu Gly Ile Pro
 40 20 25 30
 42 tat gca cag cca cct ctt ggt aga ctt cga ttc aaa aag cca cag tct 144
 43 Tyr Ala Gln Pro Pro Leu Gly Arg Leu Arg Phe Lys Lys Pro Gln Ser
 44 35 40 45
 46 ctg acc aag tgg tct gat att tgg aat gcc aca aaa tat gca aat tct 192
 47 Leu Thr Lys Trp Ser Asp Ile Trp Asn Ala Thr Lys Tyr Ala Asn Ser
 48 50 55 60
 50 tgc tgt cag aac ata gat caa agt ttt cca ggc ttc cat gga tca gag 240
 51 Cys Cys Gln Asn Ile Asp Gln Ser Phe Pro Gly Phe His Gly Ser Glu
 52 65 70 75 80
 54 atg tgg aac cca aac act gac ctc agt gaa gac tgt tta tat cta aat 288
 55 Met Trp Asn Pro Asn Thr Asp Leu Ser Glu Asp Cys Leu Tyr Leu Asn
 56 85 90 95
 58 gta tgg att cca gca cct aaa cca aaa aat gcc act gta ttg ata tgg 336
 59 Val Trp Ile Pro Ala Pro Lys Pro Lys Asn Ala Thr Val Leu Ile Trp
 60 100 105 110
 62 att tat ggt ggt ggt ttt caa act gga aca tca tct tta cat gtt tat 384
 63 Ile Tyr Gly Gly Gly Phe Gln Thr Gly Thr Ser Ser Leu His Val Tyr



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64      115      120      125
66 gat ggc aag ttt ctg gct cgg gtt gaa aga gtt att gta gtg tca atg      432
67 Asp Gly Lys Phe Leu Ala Arg Val Glu Arg Val Ile Val Val Ser Met
68      130      135      140
70 aac tat agg gtg ggt gcc cta gga ttc tta gct ttg cca gga aat cct      480
71 Asn Tyr Arg Val Gly Ala Leu Gly Phe Leu Ala Leu Pro Gly Asn Pro
72 145      150      155      160
74 gag gct cca ggg aac atg ggt tta ttt gat caa cag ttg gct ctt cag      528
75 Glu Ala Pro Gly Asn Met Gly Leu Phe Asp Gln Gln Leu Ala Leu Gln
76      165      170      175
78 tgg gtt caa aaa aat ata gca gcc ttt ggt gga aat cct aaa agt gta      576
79 Trp Val Gln Lys Asn Ile Ala Ala Phe Gly Gly Asn Pro Lys Ser Val
80      180      185      190
82 act ctc ttt gga gaa agt gca gga gca gct tca gtt agc ctg cat ttg      624
83 Thr Leu Phe Gly Glu Ser Ala Gly Ala Ala Ser Val Ser Leu His Leu
84      195      200      205
86 ctt tct cct gga agc cat tca ttg ttc acc aga gcc att ctg caa agt      672
87 Leu Ser Pro Gly Ser His Ser Leu Phe Thr Arg Ala Ile Leu Gln Ser
88      210      215      220
90 ggt tcc gck aat gct cct tgg gcg gta aca tct ctt tat gaa gct agg      720
W--> 91 Gly Ser Xaa Asn Ala Pro Trp Ala Val Thr Ser Leu Tyr Glu Ala Arg
92 225      230      235      240
94 aac aga acg ttg aac tta gct aaa ttg act ggt tgc tct aga gag aat      768
95 Asn Arg Thr Leu Asn Leu Ala Lys Leu Thr Gly Cys Ser Arg Glu Asn
96      245      250      255
98 gag act gaa ata atc aag tgt ctt aga aat aaa gat ccc caa gaa att      816
99 Glu Thr Glu Ile Ile Lys Cys Leu Arg Asn Lys Asp Pro Gln Glu Ile
100      260      265      270
102 ctt ctg aat gaa gca ttt gtt gtc ccc tat ggg act cct ttg tca gta      864
103 Leu Leu Asn Glu Ala Phe Val Val Pro Tyr Gly Thr Pro Leu Ser Val
104      275      280      285
106 aac ttt ggt ccg acc gtg gat ggt gat ttt ctc act gac atg cca gac      912
107 Asn Phe Gly Pro Thr Val Asp Gly Asp Phe Leu Thr Asp Met Pro Asp
108      290      295      300
110 ata tta ctt gaa ctt gga caa ttt aaa aaa acc cag att ttg gtg ggt      960
111 Ile Leu Leu Glu Leu Gly Gln Phe Lys Lys Thr Gln Ile Leu Val Gly
112 305      310      315      320
114 gtt aat aaa gat gaa ggg aca gct ttt tta gtc tat ggt gct cct ggc      1008
115 Val Asn Lys Asp Glu Gly Thr Ala Phe Leu Val Tyr Gly Ala Pro Gly
116      325      330      335
118 ttc agc aaa gat aac aat agt atc ata act aga aaa gaa ttt cag gaa      1056
119 Phe Ser Lys Asp Asn Asn Ser Ile Ile Thr Arg Lys Glu Phe Gln Glu
120      340      345      350
122 ggt tta aaa ata ttt ttt cca gga gtg agt gag ttt gga aag gaa tcc      1104
123 Gly Leu Lys Ile Phe Phe Pro Gly Val Ser Glu Phe Gly Lys Glu Ser
124      355      360      365
126 atc ctt ttt cat tac aca gac tgg gta gat gat cag aga cct gaa aac      1152
127 Ile Leu Phe His Tyr Thr Asp Trp Val Asp Asp Gln Arg Pro Glu Asn
128      370      375      380

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130 tac cgt gag gcc ttg ggt gat gtt gtt ggg gat tat aat ttc ata tgc      1200
131 Tyr Arg Glu Ala Leu Gly Asp Val Val Gly Asp Tyr Asn Phe Ile Cys
132 385                               390                               395                               400
134 cct gcc ttg gag ttc acc aag aag ttc tca gaa tgg gga aat aat gcc      1248
135 Pro Ala Leu Glu Phe Thr Lys Lys Phe Ser Glu Trp Gly Asn Asn Ala
136                               405                               410                               415
138 ttt ttc tac tat ttt gaa cac cga tcc tcc aaa ctt ccg tgg cca gaa      1296
139 Phe Phe Tyr Tyr Phe Glu His Arg Ser Ser Lys Leu Pro Trp Pro Glu
140                               420                               425                               430
142 tgg atg gga gtg atg cat ggc tat gaa att gaa ttt gtc ttt ggt tta      1344
143 Trp Met Gly Val Met His Gly Tyr Glu Ile Glu Phe Val Phe Gly Leu
144                               435                               440                               445
146 cct ctg gaa aga aga gat aat tac aca aaa gcc gag gaa att ttg agt      1392
147 Pro Leu Glu Arg Arg Asp Asn Tyr Thr Lys Ala Glu Glu Ile Leu Ser
148                               450                               455                               460
150 aga tcc ata gtg aaa cgg tgg gca aat ttt gca aaa tat ggg aat cca      1440
151 Arg Ser Ile Val Lys Arg Trp Ala Asn Phe Ala Lys Tyr Gly Asn Pro
152 465                               470                               475                               480
154 aat gag act cag aac aat agc aca agc tgg cct gtc ttc aaa agc act      1488
155 Asn Glu Thr Gln Asn Asn Ser Thr Ser Trp Pro Val Phe Lys Ser Thr
156                               485                               490                               495
158 gaa caa aaa tat cta acc ttg aat aca gag tca aca aga ata atg acg      1536
159 Glu Gln Lys Tyr Leu Thr Leu Asn Thr Glu Ser Thr Arg Ile Met Thr
160                               500                               505                               510
162 aaa cta cgt gct caa caa tgt cga ttc tgg aca tca ttt ttt cca aaa      1584
163 Lys Leu Arg Ala Gln Gln Cys Arg Phe Trp Thr Ser Phe Phe Pro Lys
164                               515                               520                               525
166 gtc ttg gaa atg aca gga aat att gat gaa gca gaa tgg gag tgg aaa      1632
167 Val Leu Glu Met Thr Gly Asn Ile Asp Glu Ala Glu Trp Glu Trp Lys
168                               530                               535                               540
170 gca gga ttc cat cgc tgg aac aat tac atg atg gac tgg aaa aat caa      1680
171 Ala Gly Phe His Arg Trp Asn Asn Tyr Met Met Asp Trp Lys Asn Gln
172 545                               550                               555                               560
174 ttt aac gat tac act agc aag aaa gaa agt tgt gtg ggt ctc      1722
175 Phe Asn Asp Tyr Thr Ser Lys Lys Glu Ser Cys Val Gly Leu
176                               565                               570
178 <210> SEQ ID NO: 2
179 <211> LENGTH: 574
180 <212> TYPE: PRT
181 <213> ORGANISM: Artificial Sequence
183 <220> FEATURE:
184 <223> OTHER INFORMATION: synthetic butyrylcholinesterase variant
186 <220> FEATURE:
187 <221> NAME/KEY: VARIANT
188 <222> LOCATION: 227
189 <223> OTHER INFORMATION: Xaa = Ala
191 <400> SEQUENCE: 2
192 Glu Asp Asp Ile Ile Ile Ala Thr Lys Asn Gly Lys Val Arg Gly Met
193 1                               5                               10                               15

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```

194 Asn Leu Thr Val Phe Gly Gly Thr Val Thr Ala Phe Leu Gly Ile Pro
195          20          25          30
196 Tyr Ala Gln Pro Pro Leu Gly Arg Leu Arg Phe Lys Lys Pro Gln Ser
197          35          40          45
198 Leu Thr Lys Trp Ser Asp Ile Trp Asn Ala Thr Lys Tyr Ala Asn Ser
199          50          55          60
200 Cys Cys Gln Asn Ile Asp Gln Ser Phe Pro Gly Phe His Gly Ser Glu
201 65          70          75          80
202 Met Trp Asn Pro Asn Thr Asp Leu Ser Glu Asp Cys Leu Tyr Leu Asn
203          85          90          95
204 Val Trp Ile Pro Ala Pro Lys Pro Lys Asn Ala Thr Val Leu Ile Trp
205          100         105         110
206 Ile Tyr Gly Gly Phe Gln Thr Gly Thr Ser Ser Leu His Val Tyr
207          115         120         125
208 Asp Gly Lys Phe Leu Ala Arg Val Glu Arg Val Ile Val Val Ser Met
209          130         135         140
210 Asn Tyr Arg Val Gly Ala Leu Gly Phe Leu Ala Leu Pro Gly Asn Pro
211 145         150         155         160
212 Glu Ala Pro Gly Asn Met Gly Leu Phe Asp Gln Gln Leu Ala Leu Gln
213          165         170         175
214 Trp Val Gln Lys Asn Ile Ala Ala Phe Gly Gly Asn Pro Lys Ser Val
215          180         185         190
216 Thr Leu Phe Gly Glu Ser Ala Gly Ala Ala Ser Val Ser Leu His Leu
217          195         200         205
218 Leu Ser Pro Gly Ser His Ser Leu Phe Thr Arg Ala Ile Leu Gln Ser
219          210         215         220
W--> 220 Gly Ser Xaa Asn Ala Pro Trp Ala Val Thr Ser Leu Tyr Glu Ala Arg
221 225         230         235         240
222 Asn Arg Thr Leu Asn Leu Ala Lys Leu Thr Gly Cys Ser Arg Glu Asn
223          245         250         255
224 Glu Thr Glu Ile Ile Lys Cys Leu Arg Asn Lys Asp Pro Gln Glu Ile
225          260         265         270
226 Leu Leu Asn Glu Ala Phe Val Val Pro Tyr Gly Thr Pro Leu Ser Val
227          275         280         285
228 Asn Phe Gly Pro Thr Val Asp Gly Asp Phe Leu Thr Asp Met Pro Asp
229          290         295         300
230 Ile Leu Leu Glu Leu Gly Gln Phe Lys Lys Thr Gln Ile Leu Val Gly
231 305         310         315         320
232 Val Asn Lys Asp Glu Gly Thr Ala Phe Leu Val Tyr Gly Ala Pro Gly
233          325         330         335
234 Phe Ser Lys Asp Asn Asn Ser Ile Ile Thr Arg Lys Glu Phe Gln Glu
235          340         345         350
236 Gly Leu Lys Ile Phe Phe Pro Gly Val Ser Glu Phe Gly Lys Glu Ser
237          355         360         365
238 Ile Leu Phe His Tyr Thr Asp Trp Val Asp Asp Gln Arg Pro Glu Asn
239          370         375         380
240 Tyr Arg Glu Ala Leu Gly Asp Val Val Gly Asp Tyr Asn Phe Ile Cys
241 385         390         395         400
242 Pro Ala Leu Glu Phe Thr Lys Lys Phe Ser Glu Trp Gly Asn Asn Ala

```

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```

243                               405                               410                               415
244 Phe Phe Tyr Tyr Phe Glu His Arg Ser Ser Lys Leu Pro Trp Pro Glu
245                               420                               425                               430
246 Trp Met Gly Val Met His Gly Tyr Glu Ile Glu Phe Val Phe Gly Leu
247                               435                               440                               445
248 Pro Leu Glu Arg Arg Asp Asn Tyr Thr Lys Ala Glu Glu Ile Leu Ser
249                               450                               455                               460
250 Arg Ser Ile Val Lys Arg Trp Ala Asn Phe Ala Lys Tyr Gly Asn Pro
251 465                               470                               475                               480
252 Asn Glu Thr Gln Asn Asn Ser Thr Ser Trp Pro Val Phe Lys Ser Thr
253                               485                               490                               495
254 Glu Gln Lys Tyr Leu Thr Leu Asn Thr Glu Ser Thr Arg Ile Met Thr
255                               500                               505                               510
256 Lys Leu Arg Ala Gln Gln Cys Arg Phe Trp Thr Ser Phe Phe Pro Lys
257                               515                               520                               525
258 Val Leu Glu Met Thr Gly Asn Ile Asp Glu Ala Glu Trp Glu Trp Lys
259                               530                               535                               540
260 Ala Gly Phe His Arg Trp Asn Asn Tyr Met Met Asp Trp Lys Asn Gln
261 545                               550                               555                               560
262 Phe Asn Asp Tyr Thr Ser Lys Lys Glu Ser Cys Val Gly Leu
263                               565                               570
265 <210> SEQ ID NO: 3
266 <211> LENGTH: 1722
267 <212> TYPE: DNA
268 <213> ORGANISM: Artificial Sequence
270 <220> FEATURE:
271 <221> NAME/KEY: CDS
272 <222> LOCATION: (1)...(1722)
274 <223> OTHER INFORMATION: synthetic butyrylcholinesterase variant
276 <400> SEQUENCE: 3
277 gaa gat gac atc ata att gca aca aag aat gga aaa gtc aga ggg atg      48
278 Glu Asp Asp Ile Ile Ile Ala Thr Lys Asn Gly Lys Val Arg Gly Met
279 1 5 10 15
281 aac ttg aca gtt ttt ggt ggc acg gta aca gcc ttt ctt gga att ccc      96
282 Asn Leu Thr Val Phe Gly Gly Thr Val Thr Ala Phe Leu Gly Ile Pro
283 20 25 30
285 tat gca cag cca cct ctt ggt aga ctt cga ttc aaa aag cca cag tct      144
286 Tyr Ala Gln Pro Pro Leu Gly Arg Leu Arg Phe Lys Lys Pro Gln Ser
287 35 40 45
289 ctg acc aag tgg tct gat att tgg aat gcc aca aaa tat gca aat tct      192
290 Leu Thr Lys Trp Ser Asp Ile Trp Asn Ala Thr Lys Tyr Ala Asn Ser
291 50 55 60
293 tgc tgt cag aac ata gat caa agt ttt cca ggc ttc cat gga tca gag      240
294 Cys Cys Gln Asn Ile Asp Gln Ser Phe Pro Gly Phe His Gly Ser Glu
295 65 70 75 80
297 atg tgg aac cca aac act gac ctc agt gaa gac tgt tta tat cta aat      288
298 Met Trp Asn Pro Asn Thr Asp Leu Ser Glu Asp Cys Leu Tyr Leu Asn
299 85 90 95
301 gta tgg att cca gca cct aaa cca aaa aat gcc act gta ttg ata tgg      336

```

RAW SEQUENCE LISTING ERROR SUMMARY
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Input Set : A:\66797-395.txt
Output Set: N:\CRF4\08042004\J728723.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; Xaa Pos. 227
Seq#:2; Xaa Pos. 227
Seq#:3; Xaa Pos. 227,284
Seq#:4; Xaa Pos. 227,284
Seq#:5; Xaa Pos. 227
Seq#:6; Xaa Pos. 227
Seq#:7; Xaa Pos. 227
Seq#:8; Xaa Pos. 227
Seq#:9; Xaa Pos. 227
Seq#:10; Xaa Pos. 227
Seq#:13; Xaa Pos. 287
Seq#:14; Xaa Pos. 287
Seq#:23; Xaa Pos. 227
Seq#:24; Xaa Pos. 227
Seq#:25; Xaa Pos. 227
Seq#:26; Xaa Pos. 227
Seq#:27; Xaa Pos. 227
Seq#:28; Xaa Pos. 227
Seq#:29; Xaa Pos. 227
Seq#:30; Xaa Pos. 227
Seq#:31; Xaa Pos. 227
Seq#:32; Xaa Pos. 227
Seq#:33; Xaa Pos. 227
Seq#:34; Xaa Pos. 227
Seq#:35; Xaa Pos. 227
Seq#:36; Xaa Pos. 227
Seq#:37; Xaa Pos. 227
Seq#:38; Xaa Pos. 227
Seq#:39; Xaa Pos. 227
Seq#:40; Xaa Pos. 227
Seq#:41; Xaa Pos. 227
Seq#:42; Xaa Pos. 227
Seq#:43; Xaa Pos. 227
Seq#:44; Xaa Pos. 227
Seq#:45; Xaa Pos. 227
Seq#:46; Xaa Pos. 227
Seq#:47; Xaa Pos. 227
Seq#:48; Xaa Pos. 227
Seq#:49; Xaa Pos. 227
Seq#:50; Xaa Pos. 227
Seq#:51; Xaa Pos. 227
Seq#:52; Xaa Pos. 226
Seq#:53; Xaa Pos. 227
Seq#:54; Xaa Pos. 227

RAW SEQUENCE LISTING ERROR SUMMARY
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Input Set : A:\66797-395.txt

Output Set: N:\CRF4\08042004\J728723.raw

Seq#:55; Xaa Pos. 227
Seq#:56; Xaa Pos. 227
Seq#:57; Xaa Pos. 227
Seq#:58; Xaa Pos. 227
Seq#:59; Xaa Pos. 227
Seq#:60; Xaa Pos. 227
Seq#:61; Xaa Pos. 227
Seq#:62; Xaa Pos. 227
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RAW SEQUENCE LISTING ERROR SUMMARY
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Input Set : A:\66797-395.txt

Output Set: N:\CRF4\08042004\J728723.raw

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Input Set : A:\66797-395.txt
Output Set: N:\CRF4\08042004\J728723.raw

Seq#:153; Xaa Pos. 227
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Seq#:155; Xaa Pos. 227
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Seq#:191; Xaa Pos. 227
Seq#:192; Xaa Pos. 227
Seq#:193; Xaa Pos. 227
Seq#:194; Xaa Pos. 227
Seq#:195; Xaa Pos. 227
Seq#:196; Xaa Pos. 227
Seq#:204; Xaa Pos. 227

VERIFICATION SUMMARY

DATE: 08/04/2004

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TIME: 09:51:53

Input Set : A:\66797-395.txt

Output Set: N:\CRF4\08042004\J728723.raw

L:91 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:720
L:220 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2 after pos.:224
L:334 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:720
L:346 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3 after pos.:864
L:469 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:224
L:475 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4 after pos.:272
L:583 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5 after pos.:720
L:713 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:224
L:827 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7 after pos.:720
L:957 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:224
L:1071 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:720
L:1200 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10 after pos.:224
L:1566 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:864
L:1695 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14 after pos.:272
L:2706 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23 after pos.:720
L:2835 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24 after pos.:224
L:2949 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25 after pos.:720
L:3079 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26 after pos.:224
L:3193 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27 after pos.:720
L:3323 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28 after pos.:224
L:3439 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29 after pos.:720
L:3569 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30 after pos.:224
L:3684 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31 after pos.:720
L:3814 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32 after pos.:224
L:3929 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33 after pos.:720
L:4059 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34 after pos.:224
L:4173 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35 after pos.:720
L:4302 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:224
L:4416 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37 after pos.:720
L:4545 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38 after pos.:224
L:4659 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39 after pos.:720
L:4788 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40 after pos.:224
L:4903 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41 after pos.:720
L:5032 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42 after pos.:224
L:5147 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:43 after pos.:720
L:5276 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44 after pos.:224
L:5391 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45 after pos.:720
L:5521 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46 after pos.:224
L:5636 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:47 after pos.:720
L:5765 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48 after pos.:224
L:5879 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49 after pos.:720
L:6008 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50 after pos.:224
L:6122 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51 after pos.:720
L:6252 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52 after pos.:224
L:6366 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53 after pos.:720
L:6495 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54 after pos.:224
L:6610 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55 after pos.:720
L:6740 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56 after pos.:224

VERIFICATION SUMMARY

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PATENT APPLICATION: US/10/728,723

TIME: 09:51:53

Input Set : A:\66797-395.txt

Output Set: N:\CRF4\08042004\J728723.raw

L:6854 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:57 after pos.:720
L:6983 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58 after pos.:224
L:7097 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59 after pos.:720
L:7227 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:60 after pos.:224
L:7341 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:61 after pos.:720
L:7471 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:62 after pos.:224
L:7585 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:63 after pos.:720
L:7714 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:64 after pos.:224
L:7828 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:65 after pos.:720
L:7957 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:66 after pos.:224
L:8072 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:67 after pos.:720
L:8201 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:68 after pos.:224
L:8315 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:69 after pos.:720
L:8444 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:70 after pos.:224
L:8558 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:71 after pos.:720
L:8687 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:72 after pos.:224
L:8801 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:73 after pos.:720
L:8930 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:74 after pos.:224
L:9044 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:75 after pos.:720
L:9174 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:76 after pos.:224
L:9288 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:77 after pos.:720
L:9417 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:78 after pos.:224
L:9532 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:79 after pos.:720
L:9661 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:80 after pos.:224
L:9775 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:81 after pos.:720
L:9904 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:82 after pos.:224
L:10020 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:83 after pos.:720
L:10149 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:84 after pos.:224
L:10263 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:85 after pos.:720
L:10394 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:86 after pos.:224
L:10509 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:87 after pos.:720
L:10639 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:88 after pos.:224
L:10753 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:89 after pos.:720
L:10882 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:90 after pos.:224
L:10996 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:91 after pos.:720
L:11126 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:92 after pos.:224
L:11240 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:93 after pos.:720
L:11369 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:94 after pos.:224
L:11483 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:95 after pos.:720
L:11612 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:96 after pos.:224
L:11726 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:97 after pos.:720
L:11855 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:98 after pos.:224
L:11969 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:99 after pos.:720
L:12098 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:100 after pos.:224
L:12212 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:101 after pos.:720
L:12341 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:102 after pos.:224
L:12456 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:103 after pos.:720
L:12585 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:104 after pos.:224
L:12701 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:105 after pos.:720

VERIFICATION SUMMARY

DATE: 08/04/2004

PATENT APPLICATION: US/10/728,723

TIME: 09:51:53

Input Set : A:\66797-395.txt

Output Set: N:\CRF4\08042004\J728723.raw

L:12830 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:106 after pos.:224
L:12945 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:107 after pos.:720
L:13076 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:108 after pos.:224
L:13190 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:109 after pos.:720
L:13319 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:110 after pos.:224
L:13433 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:111 after pos.:720
L:13563 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:112 after pos.:224
L:13678 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:113 after pos.:720
L:13807 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:114 after pos.:224
L:13922 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:115 after pos.:720
L:14051 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:116 after pos.:224
L:14166 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:117 after pos.:720
L:14296 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:118 after pos.:224
L:14410 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:119 after pos.:720
L:14539 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:120 after pos.:224
L:14653 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:121 after pos.:720
L:14782 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:122 after pos.:224
L:14896 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:123 after pos.:720
L:15025 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:124 after pos.:224
L:15139 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:125 after pos.:720
L:15268 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:126 after pos.:224
L:15382 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:127 after pos.:720
L:15511 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:128 after pos.:224
L:15625 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:129 after pos.:720
L:15754 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:130 after pos.:224
L:15868 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:131 after pos.:720
L:15997 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:132 after pos.:224
L:16112 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:133 after pos.:720
L:16241 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:134 after pos.:224
L:16356 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:135 after pos.:720
L:16485 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:136 after pos.:224
L:16599 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:137 after pos.:720
L:16728 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:138 after pos.:224
L:16842 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:139 after pos.:720
L:16971 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:140 after pos.:224
L:17086 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:141 after pos.:720
L:17215 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:142 after pos.:224
L:17329 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:143 after pos.:720
L:17458 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:144 after pos.:224
L:17572 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:145 after pos.:720
L:17702 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:146 after pos.:224
L:17817 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:147 after pos.:720
L:17946 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:148 after pos.:224
L:18060 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:149 after pos.:720
L:18189 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:150 after pos.:224
L:18303 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:151 after pos.:720
L:18433 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:152 after pos.:224
L:18547 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:153 after pos.:720
L:18676 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:154 after pos.:224

VERIFICATION SUMMARY

DATE: 08/04/2004

PATENT APPLICATION: US/10/728,723

TIME: 09:51:53

Input Set : A:\66797-395.txt

Output Set: N:\CRF4\08042004\J728723.raw

L:18791 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:155 after pos.:720
L:18920 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:156 after pos.:224
L:19035 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:157 after pos.:720
L:19167 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:158 after pos.:224
L:19283 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:159 after pos.:720
L:19412 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:160 after pos.:224
L:19526 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:161 after pos.:720
L:19655 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:162 after pos.:224
L:19770 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:163 after pos.:720
L:19900 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:164 after pos.:224
L:20015 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:165 after pos.:720
L:20145 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:166 after pos.:224
L:20259 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:167 after pos.:720
L:20389 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:168 after pos.:224
L:20503 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:169 after pos.:720
L:20632 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:170 after pos.:224
L:20748 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:171 after pos.:720
L:20877 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:172 after pos.:224
L:20991 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:173 after pos.:720
L:21120 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:174 after pos.:224
L:21234 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:175 after pos.:720
L:21364 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:176 after pos.:224
L:21478 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:177 after pos.:720
L:21607 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:178 after pos.:224
L:21721 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:179 after pos.:720
L:21850 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:180 after pos.:224
L:21964 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:181 after pos.:720
L:22093 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:182 after pos.:224
L:22207 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:183 after pos.:720
L:22336 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:184 after pos.:224
L:22450 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:185 after pos.:720
L:22579 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:186 after pos.:224
L:22693 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:187 after pos.:720
L:22822 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:188 after pos.:224
L:23175 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:191 after pos.:720
L:23304 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:192 after pos.:224
L:23418 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:193 after pos.:720
L:23548 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:194 after pos.:224
L:23662 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:195 after pos.:720
L:23791 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:196 after pos.:224
L:23844 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:23847 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:197
L:23945 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (199) SEQUENCE:
L:23950 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (200) SEQUENCE:
L:23960 M:281 W: Numeric Fields not Ordered, <221> Sort in ascending order!
L:23963 M:258 W: Mandatory Feature missing, <220> Tag not found for SEQ ID#:201
L:24269 M:300 W: (50) Intentionally skipped Sequence, : Sequence Id (203) SEQUENCE:
L:24314 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:204 after pos.:224